Job: ­­

# MVB® - Type H

## Heating Boilers Models 503A-2003A

Engineer:

Contractor:

Prepared By:       Date:

Model:       Indoor/Outdoor:

86.2% Thermal Efficiency at Full Rate

100% Factory Fire-Tested

VERSA IC® Integrated Controller with 7” Color Touchscreen Display

Raymote™ remote connectivity provided standard

Electronic Modulation, Constant Ratio 7:1 Turndown

Full Safety Diagnostics with History

Status Display Lights

Modbus RTU BMS Port

Maximum Outlet Water Temperature: 235°F

Minimum Acceptable Inlet Water Temperature: 120°F

Limited Twenty-Five-Year Thermal Shock Warranty

flag%201Limited Ten-Year Heat Exchanger Warranty

Proudly Assembled in the USA

Ultra Low NOx – Less than 20PPM

#### Heat Exchanger

* Headers

Cast Iron – Standard

A-1 Bronze

* ASME H Stamped  
  160 PSIG MAWP
* National Board Approved
* Fin Tubing

Copper – Standard

A-3 Cupronickel

* ASME Powder-Coated Tube Sheet
* Silicone High-Temp O-Rings
* ASME Pressure Relief Valve

60 PSIG – Standard

    PSIG – Optional

* Temperature and Pressure Gauge,  
  Shipped Loose
* Stainless Steel Evaporator Plate
* Four-pass heat exchanger

#### Control

* 120V, 60Hz, 1Ø, Power Supply
* 120/24V 60Hz Transformer
* VERSA IC® built-in controller
* 7” color HD touchscreen display
* Raymote™ Wi-Fi remote connectivity
* Cascade up to 4 Boilers
* Ignition Module

3-Try – Standard

C-6 Single-Try

* Remote Flame Sensor
* Freeze Protection
* High Limit, Manual Reset, Fixed, 240ºF
* On/Off Power Switch
* Flow Switch
* Blocked Vent Pressure Switch
* Pump Outputs
* Boiler pump
* DHW Indirect – Pilot Duty
* System – Pilot Duty
* Programmable Pump Time Delays
* Water Temperature Sensors (7)
* Cold Water Protection Function

Optional Variable Speed Pump

Optional Proportional Valve

* Modbus RTU BMS Port

B-85 Gateway – BACnet MS/TP, BACnet IP, N2 Metasys or Modbus TCP

B-86 Gateway - LonWorks

#### Burner

* Hot Surface Ignition (HSI)
* Radially-Fired Knitted Burner

#### Gas Train

* Fuel

Natural Gas

Propane (Minimum Grade HD-5)

* Dual-Seat Combination Firing Valve
* Manual Shut-Off Valve

#### Construction

* Design Certified ANSI Z21.13/CSA 4.9
* CSA Low Lead Certified ≤.25% Lead
* Indoor/Outdoor Construction
* Front Controls Enclosed
* PolyTuf Powder Coat Finish
* Rear Connections (Water, Electrical, Gas, Vent, Combustion Air)
* Combustion Air Filter – Inline

#### Venting

* Vent Termination

D-11 Outdoor

D-15 Indoor, Horizontal

Indoor, Vertical (by others)

* Combustion Air

D-16 Air Intake Elbow

* Extractor – Optional

By others

Not required

**Options**

A-30 Air Vent, Auto, 150 PSI (loose)

B-31 Dry-Well Assembly

B-32 Outdoor Air Sensor

F-10 Low Water Cut-Off, Remote Probe

I-1 High Limit, Auto Reset, Adj.,   
100-240°F

I-2 High Limit, Manual Reset, Adj., 100-240°F (additional)

P-   Pump:      HP, 120V, 1∅, 60Hz

Cast Iron  Bronze

Loose  Mounted

P-   Cold Water Start

P-   Cold Water Run

S-1 Low Gas Pressure Switch,   
Manual Reset

S-2 High Gas Pressure Switch, Manual Reset

Z-12 Condensate Treatment Kit

#### Additional Options or Accessories

#### 

#### Multi-Boiler Temperature Controllers

TempTracker Mod+ Hybrid

B-36 2-4 Heaters

B-37 5-10 Heaters

B-38 11-16 Heaters

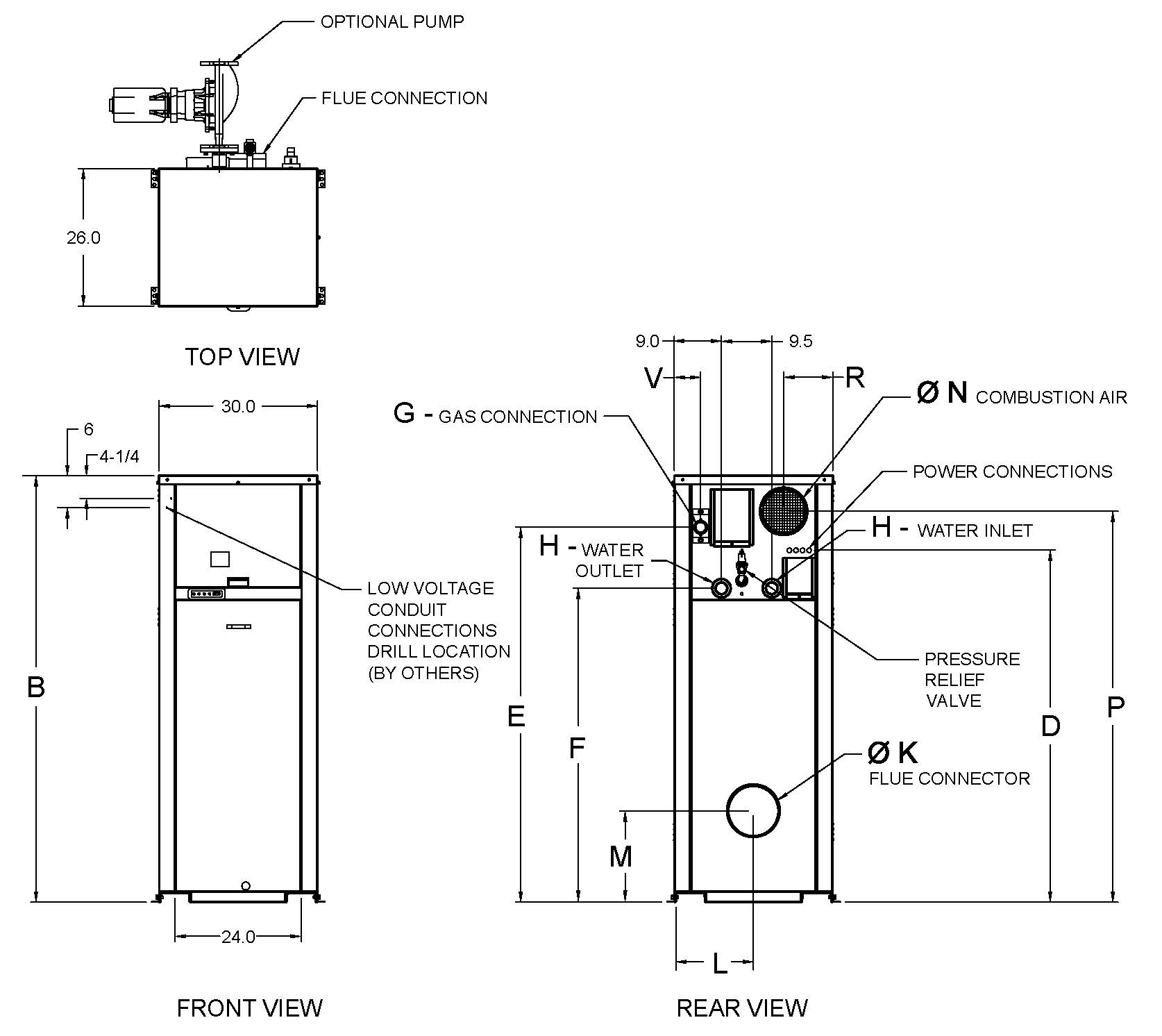
B-39 EMS 4-20mA Remote Setpoint Interface Module

B-62 BACnet MS/TP Interface



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Models 503A-2003A Model



|  |  |  |
| --- | --- | --- |
|  | Certified Minimum | Recomm. Service |
|  |
| Front | 24” | 24” |
| Rear | 12” | 24” |
| Right | 1’ | 1” |
| Left | 1” | 1” |
| Top | 0” | 10” |
| Floor | 0” | 0” |
| Vent | 1” | 1” |

**CLEARANCES**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model**  **(H7-)** | **MBTUH** | | **Dimensions (in.)** | | | | | | | | | | | | |
| **B**  **Height** | **D** | **E** | **F** | **G\***  **NPT** | **H**  **NPT** | **K**  **Flue**  **Ø** | **L** | **M** | **N**  **C/A**  **Ø** | **P** | **R** | **V** |
| **Input** | **Output** |
| 503A | 500 | 431 | 43 | 30-3/4 | 35 | 23-3/4 | 1 | 2 | 6 | 13-3/4 | 14-1/4 | 6 | 36-3/4 | 8-1/4 | 1-3/4 |
| 753A | 750 | 647 | 49 | 36-3/4 | 40-3/4 | 29-1/2 | 1 | 2 | 6 | 13-1/2 | 14-1/4 | 6 | 42-1/2 | 8-1/4 | 1-3/4 |
| 1003A | 999 | 861 | 55 | 42-3/4 | 46-3/4 | 35-1/2 | 1-1/4 | 2-1/2 | 6 | 13-1/2 | 14-1/4 | 6 | 48-1/2 | 8-1/4 | 1-3/4 |
| 1253A | 1250 | 1078 | 61 | 48-3/4 | 53 | 41-3/4 | 1-1/4 | 2-1/2 | 8 | 13-3/4 | 17-1/4 | 8 | 54-3/4 | 8-1/4 | 1-3/4 |
| 1503A | 1500 | 1293 | 67 | 54-3/4 | 58-3/4 | 47-1/2 | 1-1/4 | 2-1/2 | 8 | 13-3/4 | 17-1/4 | 8 | 60-1/2 | 8-1/4 | 1-3/4 |
| 1753A | 1750 | 1508 | 75 | 61 | 65-1/4 | 53-3/4 | 2 | 2-1/2 | 8 | 13-1/2 | 17-1/4 | 8 | 68-1/2 | 9-1/2 | 5 |
| 2003A | 1999 | 1723 | 81 | 66-3/4 | 71-1/4 | 59-1/2 | 2 | 2-1/2 | 8 | 13-3/4 | 17-1/4 | 8 | 74 | 9-1/2 | 5 |

\* For natural gas. For propane, 1” NPT for all sizes.

* Ratings shown are for elevations up to 4,500 feet. For installations at elevations above 4,500 feet, please consult the factory for additional instructions.
* For direct vent applications, please contact the factory about relocating the pump.

|  |  |  |  |
| --- | --- | --- | --- |
| PUMP HP (Amps\*) | | | |
| **Model**  **(H7-)** | Water Hardness | | |
| Soft | Medium | Hard |
| 503A | 1/4 - 6 | 1/4 - 6 | 3/4 – 11 |
| 753A | 1/4 - 6 | 1/2 – 7 | 3/4 – 11 |
| 1003A | 1/4 - 6 | 1/2 – 7 | 1 – 14 |
| 1253A | 1/2 – 7 | 1 – 14 | 1 – 14 |
| 1503A | 3/4 – 11 | 1 – 14 | 1 – 14 |
| 1753A | 1 – 14 | 1-1/2 – 16 | 1-1/2 – 16 |
| 2003A | 1 – 14 | 1-1/2 – 16 | 1-1/2 – 16 |

\*Current Draw is for Pump Only

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Models 503A-2003A Model

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | Model  (H7-) | Shipping Weight  (Lbs.) | Footprint  (Ft2) | Amps\* | | 503A | 600 | 5.4 | 12 | | 753A | 670 | 5.4 | 12 | | 1003A | 720 | 5.4 | 12 | | 1253A | 780 | 5.4 | 12 | | 1503A | 840 | 5.4 | 12 | | 1753A | 940 | 5.4 | 18 | | 2003A | 1000 | 5.4 | 18 |   \*Current draw is for heater only.   (Supply breaker must have delayed trip.) |  |

**RATES OF FLOW AND PRESSURE DROPS**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model**  **(H7-)** | **20**°**F ΔT** | | **30**°**F ΔT** | | **39**°**F ΔT\*** | | **Maximum Flow** | | | **Minimum Flow\*** | | |
| **GPM** | **ΔP (ft.)** | **GPM** | **ΔP (ft.)** | **GPM** | **ΔP (ft.)** | **GPM** | **ΔP (ft.)** | **ΔT (**°**F)** | **GPM** | **ΔP (ft.)** | **ΔT (**°**F)** |
| 503A | 43 | 2.8 | 29 | 1.4 | N/A | N/A | 100 | 11.3 | 8.6 | 25 | 1.1 | 35 |
| 753A | 65 | 6.4 | 43 | 3.1 | 33 | 1.9 | 100 | 13.8 | 13 | 33 | 1.9 | 39 |
| 1003A | 86 | 12.0 | 57 | 6.0 | 44 | 3.7 | 113 | 18.6 | 15 | 44 | 3.7 | 39 |
| 1253A | 108 | 20.9 | 72 | 10.2 | 55 | 6.2 | 113 | 22.2 | 19 | 55 | 6.2 | 39 |
| 1503A | N/A | N/A | 86 | 16.0 | 66 | 9.5 | 113 | 25.5 | 23 | 66 | 9.5 | 39 |
| 1753A | N/A | N/A | 101 | 22.5 | 77 | 13.4 | 113 | 27.2 | 27 | 77 | 13.4 | 39 |
| 2003A | N/A | N/A | 115 | 31.9 | 88 | 18.9 | 115 | 30.2 | 31 | 88 | 18.9 | 39 |

\* Closed systems only

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